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field are engaged in an investigation of the geyser waters of the Yellowstone park; Mr. R. B. Riggs is making a series of analyses of the lepidolites of Maine, and is also analyzing an undescribed meteoric iron from the collection in the national museum; Mr. Hillebrand is engaged on minerals and rocks from Colorado; and Mr. Chatard is at work upon the associates of corundum from North Carolina, and upon the water of Mono Lake, California.

— A change has been made in the time of issuing the Smithsonian and national museum reports. Heretofore these reports covered the calendar year; but the board of regents of the Smithsonian institution have recently directed that the reports shall hereafter correspond to the fiscal year extending from July to the end of the following June inclusive. The reports from Jan. 1, 1885, to June 30, 1885, are now about ready for the printer; the report of the secretary of the Smithsonian institution to the board of regents, for the first half of 1885, being already published in pamphlet form.

— Bulletin No. 28 of the national museum, recently issued, is W. G. Binney's 'Manual of American land-shells,' which is an enlarged and revised edition of the 'Land and fresh-water shells of North America,' part i., published in 1869, to which subsequently described species are added.

— The *Botanical gazette* for January contains a heliotype engraving of Professor Gray, with a sketch of his life by Prof. C. R. Barnes. Other articles of interest in this number are by Professor Coulter, on the 'Pollen-spore of Tradescantia;' J. C. Arthur, upon a new fungus infesting the clover-leaf beetle, *Phytonomus punctatus*; a new species of *Anemone*, by Professor Gray, etc.

— The first number of the monthly *Journal of the Trenton natural history society* contains a number of short, readable articles, mostly on animal and plant habits.

— The joint commission appointed by the last congress to consider the propriety of consolidating the scientific bureaus of the government have concluded the examination of witnesses, and will shortly submit their report. While their recommendations are not definitely known, it is probable some sort of re-organization will be advised with regard to the signal service, and it may be entirely separated from the army. General Sheridan is authority for the statement that the army does not need this wing of its service, and that there is no objection to placing it under civil control.

— In *Science*, vii. p. 75, in the letter entitled 'An early prediction of the decay of the obelisk,' second line, 'St. Petersburg' should read 'Freiberg.'

— In *Science*, vii. p. 75, in the letter entitled 'Sea-level and ocean-currents,' seventh line, 'Bourdaione' should read 'Bourdaloue;' thirty-third line, 'diversity' should read 'density;' p. 76, second column, thirteenth line, '25 feel' should read '2.5 feet.'

LETTERS TO THE EDITOR.

**. Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The festoon cloud.

IN *Science*, vii. p. 57, Prof. W. M. Davis, after giving a description of a form of cloud designated 'festoon' cloud, asks if the cloud is commonly seen in this country. I have seen the form of cloud described at least as often as a dozen times within the last six years; but, on account of not having my records at hand, I cannot give the dates.

I have seen the cloud once or twice associated with thunder-storms, but most frequently with the stratus-cloud accompanying 'areas of low pressure,' or cyclones.

The appearance presented to me is that of a cloud-stratum with an irregular base, in contrast with the level base usually seen.

The cloud then presents an appearance as if festoons were hung from it, which are sometimes somewhat circular and rounded, at other times irregular.

The explanation given that they are due to the slow descent of cloud-matter, due to the failure of an ascending current, is, no doubt, the correct one.

H. HELM CLAYTON.

Cambridge, Mass., Jan. 24.

Text-books on methods in microscopic anatomy.

The review of Dr. Whitman's 'Methods in microscopical anatomy,' in *Science* (No. 154, p. 64), seems to me not quite just, in that it implies that the author has been negligent in the performance of his task, particularly in regard to that part of it which most gives value to his work; namely, the chapter on embryological methods. In this the author has given a careful summary, the outcome of much laborious and painstaking search; so that we have for the first time a compact presentation of a large number of special methods for the handling of embryological material. It is true that it is not exhaustive, — I am grateful that it is not, — but it contains most of the best results of experience in the difficult art of preparing eggs and embryos of many kinds for microscopical examination. And since it is just in this direction of microscopical embryology that the most earnest and capable zoological energies are now turned, I feel that Dr. Whitman has done science good service by the valuable critical compilation made in the chapter referred to. Now, I wish to find fault with your reviewer because he says that "the arrangement [of this chapter] leaves the impression that it is the result of fortuitous reading rather than a methodical search for the most valuable things

within the scope of the topic." The sentence astonishes me, and leads me to inquire what was the basis of the opinion; for it does not appear to be in the chapter itself, the arrangement of which is intelligent and intelligible, and certainly not based on mere fortuitous reading. The author of the book, if he has read the review, must, one would think, feel mortified to have such a bald accusation of negligence brought against him: I trust, therefore, that you will publish this letter, to show that at least one worker in this field places a higher value upon his volume than your reviewer does, with his paucity of commendation.

CHARLES SEDGWICK MINOT.

Boston, Mass., Jan. 20.

I am under great obligation to Dr. Minot for the kindness he has done me in calling attention to the injustice of my recent review of Dr. Whitman's book. I am myself astonished at it, and cannot comprehend how I could have made so unfair a statement when I intended no injustice.

I said, "This chapter furnishes much valuable information, but the arrangement leaves the impression that it is the result of fortuitous reading rather than a methodical search for the most valuable things within the scope of the topic."

The sentence as it stands leaves me indorsing what, it occurred to me, might be the inference of one who simply looked at the arrangement of the chapter as made up of the separate consideration of so many isolated animals—e.g., *Clepsine*, *Spirorbis borealis*, *Myzostoma*, *Sagitta*, etc.—instead of classes of animals. What I should have added was, that such an impression would be entirely misleading. I had not the least idea of making that impression represent my opinion, but quite the reverse, for it was in direct opposition to my positive knowledge; no one, perhaps, realizing better than I that the author's work had been of the most painstaking and discriminating kind. In my estimation, moreover, there was no zoölogist in this country who possessed in so great a degree the experience and the other qualifications necessary to the successful handling of this topic.

As regards the general tone of the criticism, I can only say that the esteem in which I hold the author made me distrustful of my ability to praise his work judiciously, and that in avoiding one extreme I have fallen into the error of the opposite, and appear only to criticise where there is much more that I ought to have praised.

EDWARD L. MARK.

Cambridge, Jan. 25.

Cost of scientific books.

A goodly proportion of the book-notices in your periodical contain a statement to the effect that the publisher has been too profuse in his paper; that he ought to use a poorer and thinner quality, and sell the book at half the price. This betrays a lamentable ignorance on the part of your critics, and, besides, conveys a very erroneous impression. Paper is a very inconsiderable item in the cost of manufacturing a book. It is a good-sized volume which, without the covers, will weigh four pounds, and paper as good as that in most of the books criticised costs only ten cents a pound. The utmost that could be saved by lightening and cheapening would be a third in weight, and two cents a pound in price, thus reducing the cost of the paper of a four-pound book from forty to twenty-four cents, certainly not

enough reduction to allow the price of the book to be reduced from four to two dollars.

The cost of the plates is the greatest item in the production of a book, and the ruling price for this work is eighty cents per thousand 'ems' (a page of Packard's 'Zoölogy' contains about a thousand 'ems'). Then all the cost of corrections, other than mere typographical errors, and the cost of making up the pages and inserting the cuts, are all charged as time-work. The cost of corrections in scientific work is enormous, and I have known it to amount to one and a half times the original cost of composition. A fair average for the plates for a book with the same page and type as that of Packard's 'Zoölogy' would be a dollar and a half a page. This must be considered in settling the price of a book.

Finally, the sale of strictly technical books is very limited. An edition of five hundred is a good average; and, were the price reduced to half the ruling price, the sales would not be increased ten per cent. As it is, they little more than repay the cost of publication, and the reduction so earnestly and ignorantly prayed for by your critics would involve the publisher in a considerable pecuniary loss on every strictly scientific book issued; and a few failures of that sort would make them refuse all scientific books.

I do not wish to be understood as defending the prices put on all publications; for some the charge is clearly extortionate: but, so far as I at present recall, not one of those thus criticised in your columns has a price higher than was necessary to reimburse the publisher for his outlay, and pay him a fair amount for his labor in publishing, advertising, and selling the work. I hope in future your critics will omit any reference to this feature in their fault-finding.

J. S. KINGSLEY.

Malden, Mass., Jan. 19.

Oil on troubled waters.

I feel that I must offer a few words of rejoinder to your comments on my letter of Jan. 18, because I cannot admit that there is any grave responsibility involved in my inquiring for the proofs of an alleged scientific theory, or any lack of feeling implied in my protesting against a disposition to hold out a misleading hope to 'the toilers of the sea.'

I have not tried to throw discredit on any well-directed effort to render less dangerous the hazardous vocation of the sailor: I have simply attempted to raise a note of caution against false inductions and specious generalizations. I look upon this as a question of science, not of sentiment; and I have been accustomed to regard science as a matter of hard, clear facts, and keen, cold logic.

It may possibly be that the hydrographic office is affording substantial comfort to the mariner's generally cheerless life by disseminating the fables and traditions of the sea; but, if so, it is a purely literary undertaking, not a scientific one. It may while away an otherwise tedious hour or two on shipboard to read, in effect, that a half-barrel of oil sprinkled over the entire course between New York and Liverpool will insure a safe voyage at any time and in any weather; or that a half-gallon, poured upon oakum, tied tight in a bag, and towed at the stern of a vessel, will reduce the mountainous billows, ease the strained sails and cordage, brace the bending spars and timbers, and bring welcome, peace, and quiet where all before was wild confusion and danger.